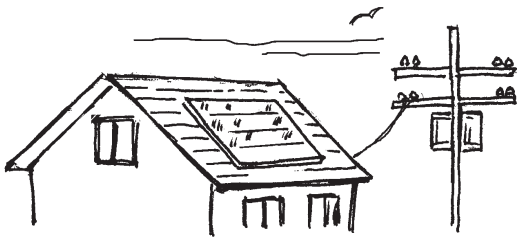
Net Metering



EPA's State and Local Climate Change Program helps build awareness, expertise, and capacity to address the risk of climate change at the state and local levels. The program provides guidance and technical information to help state and local agencies prepare inventories of greenhouse gas emissions, develop action plans to reduce emissions, and educate their constituents. By emphasizing the many economic and environmental benefits of greenhouse gas reductions, the program encourages state and local decisionmakers to implement voluntary measures to reduce their greenhouse gas emissions.

Net Metering to Promote Renewables

Promoting the use of nonpolluting, distributed sources of energy can help reduce greenhouse gas emissions. "Net metering," a policy that began experimentally in the early 1980s, offers homeowners a strong economic incentive to invest in small-scale wind, solar, and other distributed electricity generating facilities. Net metering has become increasingly attractive to both public and private authorities over the last few years. As of March 1999, 25 states had enacted some form of net metering program.

In its simplest form, net metering employs a standard electrical meter to record the flow of energy back and forth between a home generator and the utility's power grid. When the sun shines or the wind blows, and the home generator produces more power than the household is consuming, electricity flows out through the meter and into the electricity grid. At other times, when the home system is not producing enough for its own needs, it receives electricity from the grid in the normal way. At the end of the agreed billing period, the customer pays only for the household's net consumption of power.

Since most existing meters already are capable of running in both directions, such an arrangement is the simplest way to integrate small generators into the grid. This system also gives potential net metering customers an incentive to invest in environmentally friendly generating systems, which otherwise might seem less economical than obtaining power from the grid. Alternative methods, such as using two meters, are less favorable to customer generators, since they allow the utility to sell power at retail and buy it back at wholesale rates.

From the utility's point of view, net metering can provide a system of widely dispersed local generators and so can ease load distribution throughout the system by contributing electricity to the grid at times and places of highest demand. From the public's point of view, net metering can increase the proportion of nonpolluting power generation without involving any government expenditures.

The Federal Role

The Administration's proposed "Comprehensive Electricity Competition Plan" would make all consumers in the United States eligible for a net metering plan (up to 20 kilowatts per consumer, and subject to a cap to be determined at the state level). In general, however, the states have been more active in promoting net metering.

BENEFITS OF NET METERING

- Offers incentives for utility customers to invest in nonpolluting distributed energy sources.
- Is easily adaptable to all forms of small-scale electrical generation.
- Simplifies interconnection processes, technically and administratively, for utilities and consumer generators.
- Decentralizes generation in a flexible way, benefiting the utility's power distribution profile.
- Enhances the competitiveness of "green power" sources with respect to more conventional sources of energy.
- Provides an equitable way of "banking" a home's surplus power with the utility.

State Experiences with Net Metering

States have been the primary laboratories for net metering, and their policy choices have varied considerably. Differences among states are especially significant on such issues as the following:

Allowable technologies: Solar and wind are clear favorites, but small hydropower, wood, and other renewables also have a strong presence. At least five states (Maine, New Mexico, Pennsylvania, Rhode Island, and Vermont) also explicitly allow fuel cells in their net metering programs.

Maximum kilowatts allowed: Limits generally are placed on the size of home generators and on the statewide production of net-metered power. Utilities do not want to face too much competition too soon.

"Net excess generation": i.e., what to do when, at the end of a billing period, the home generator has produced more power than it has consumed off the grid.

Debate over these questions continues in many states as part of the process of experimenting with the implementation of net metering.

California

California's net metering law came into effect on January 1, 1996. In deference to the concerns of electric utilities, California imposed more stringent limits than most other states on the applicability of net metering. Only solar-powered residential units are covered (in 1998 this was extended to include wind power and small commercial generators) to a maximum capacity of 10 kilowatts. Net excess generation transactions were treated on terms favorable to utilities, with a statewide limit of 0.1 percent of the system's peak load. This figure, low enough to protect the utilities' market position, still represents a higher proportion of the state's total electrical production than wind and solar customer-generators are likely to contribute in the near future.

California estimates that net metering reduces the state's CO_2 emissions by between 49,000 and 51,000 tons per year by displacing fossil fuel-generated electricity.

Maine

In Maine, net metering has been authorized since 1987, not by legislation but through regulation by the state Public Utilities Commission. Maine allows net metering for individual generators with a capacity up to 100 kilowatts (generally the upper limit among the states) and offers it to all customer classes—not only to residential facilities, as is the case in many states—but also to commercial and industrial facilities.

Maine also requires utilities to pay no more than the "avoided cost" rate (roughly equivalent to wholesale) for any excess power produced by net-metered customers. Starting March 1, 2000, when retail competition begins in Maine, net metering customers will be able to carry over their net excess generation from month to month. At the end of the year, any unused credits for excess generation will accrue to the utility. Other states, including California, New Mexico, Rhode Island, Vermont, and Washington also have adopted this approach.

In October 1997, Maine's Public Utilities Commission decided that federal law does not pre-empt the state's authority and upheld Maine's net metering regulations in a ruling likely to have a favorable effect on programs in other jurisdictions.

Minnesota

Minnesota was the first state to legislate a net metering policy. The state's policy, passed in 1983, is also one of the more favorable to customers in its treatment of net excess generation, requiring utilities to pay at the average retail rate. In March 1997, the Minnesota Public Utilities Commission upheld this position, rejecting a challenge by one of the state's rural electric cooperatives, which had claimed that the law conflicted with the federal government's Public Utility Regulatory Policy Act of 1978.

For More Information

The U.S. Department of Energy's Energy Efficiency and Renewable Energy Network provides information on net metering, including an overview of state programs, a summary table, and a state-by-state survey.

Website: *http://www.eren.gov/greenpower/netmetering/index.shtml*

The National Renewable Energy Laboratory has published research on net metering.

Tel: 303-275-3000

Website: *http://www.nrel.gov* (use search option to find publications on net metering)

The Interstate Renewable Energy Council is involved in net metering efforts.

Tel: 617-323-7377

Website: *http://www.eren.doe.gov/irec/* (use search option to find publications on net metering)

The Solar Energy Industries Association and the American Wind Energy Association have information about net metering on their websites.

Website for Solar Energy Industries Association: *http://www.seia.org/aspindex.htm*

Website for American Wind Energy Association: *http://www.awea.org/policy/index.html#netbill*

EPA's State and Local Climate Change Program helps states and communities reduce emissions of greenhouse gases in a cost-effective manner while they address other environmental problems.

Website: *http://www.epa.gov/globalwarming/ and click on "Public Decision Makers" under the "Visitors Center."*